E

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/977,232	10/16/2001	Mikio Matsuda	03-010	3656

23400 7590 10/04/2002

LAW OFFICES OF DAVID G. POSZ
2000 L STREET, N.W.
SUITE 200
WASHINGTON, DC 20036

EXAMINER
LOPEZ, FRANK D

ART UNIT	PAPER NUMBER
3745	

DATE MAILED: 10/04/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/977,232	MATSUDA ET AL.	
	Examiner	Art Unit	
	F. Daniel Lopez	3745	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-8 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-8 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2,3 .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

Claim Rejections - 35 USC § 112

Claims 1-8 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 1 line 10 "slant plane" and line 11 "orbiting member" should be –orbiting member--. In claim 1 line 13 "like a universal joint" should be deleted.

Claims not specifically mentioned are indefinite, since they depend from claim 1.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. § 103 which forms the basis for all obviousness rejections set forth in this Office action:

> A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.
>
> Subject matter developed by another person, which qualifies as prior art only under subsection (f) or (g) of section 102 of this title, shall not preclude patentability under this section where the subject matter and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person.

Claims 1 and 3-8 are rejected under 35 U.S.C. § 103 as being unpatentable over Abousabha et al in view of Terauchi. Abousabha et al discloses a fluid pump comprising a piston (26) reciprocating in a cylinder bore (28) in a housing; an orbiting member (62) integrally rotating with a shaft (36), rotatably supported in the housing and a generally keyed (162) cylindrical constraining member, and including a slant plane slanting with respect to the shaft an a changeable angle; a ring disc type swing member (24) connected to the slant plane through a thrust bearing (98), and swinging with rotation of the orbiting member to reciprocate the piston; a swing support mechanism including the constraining member (22) axially movable along a centerline in the housing and constraining a first rotatable member (66) from rotating about the centerline, but allowing the first rotatable member to rotate about first and second axes, each

perpendicular to the centerline and crossing over each other; with the swing member connected to the first rotatable member; wherein there is a displacement capacity sensor (143) detecting the capacity based on an amount of displacement of the constraining member in a similarly shaped hole in the housing; but does not disclose that the constraining member constrains the first rotatable member from rotating about the centerline, and allowing it to rotate about the first axis; with a second rotatable member connected to the first rotatable member such that it rotates about the second axis, with the swing member connected to the second rotatable member; or that the constraining member has ether a polygonal or a gear cross section and is inserted into the corresponding shaped hole in the housing.

Terauchi teaches, for a fluid pump comprising a piston reciprocating in a cylinder bore in a housing; an orbiting member (25) integrally rotating with a shaft (20), rotatably supported in the housing, and including a slant plane slanting with respect to the shaft; a ring disc type swing member (27) connected to the slant plane through a thrust bearing (28), and swinging with rotation of the orbiting member to reciprocate the piston; a swing support mechanism including a generally cylindrical constraining member (50, fig 7) axially movable along a centerline in the housing and constraining a first rotatable member (53) from rotating about the centerline, but allowing the first rotatable member to rotate about first and second axes, each perpendicular to the centerline and crossing over each other; with the swing member connected to the first rotatable member; that the shaft is supported by the housing without being supported by the constraining member; and the equivalence of a swing support member including a constraining member (31) constrains a first rotatable member (34) from rotating about the centerline, and allowing it to rotate about the first axis; with a second rotatable member (35) connected to the first rotatable member such that it rotates about a second axis, with the swing member connected to the second rotatable member.

Since the swing support mechanism of Abousabha et al and Terauchi are functionally equivalent in the piston art; it would have been obvious at the time the invention was made to one having ordinary skill in the art to support the shaft by the housing of Abousabha et al without being supported by the constraining member, as

taught by Terauchi, and replacing the swing support mechanism of Abousabha et al with a swing support member including a constraining member (31) constrains a first rotatable member (34) from rotating about the centerline, and allowing it to rotate about the first axis; with a second rotatable member (35) connected to the first rotatable member such that it rotates about a second axis, with the swing member connected to the second rotatable member, as taught by Terauchi, as a matter of engineering expediency.

Official notice taken that it is well known to allow a first member to slide in a hole in a second member without rotating, by making the cross section of the first member and the hole is a gear shape or a polygonal shape. It would have been obvious at the time the invention was made to one having ordinary skill in the art to make the constraining member and corresponding shaped hole of Abousabha et al have ether a polygonal or a gear cross section, as a matter of engineering expediency.

Claims 1, 2 and 8 are rejected under 35 U.S.C. § 103 as being unpatentable over Mitchell in view of Terauchi. Mitchell discloses a fluid pump comprising a piston (66) reciprocating in a cylinder bore (33) in a housing; an orbiting member (28) integrally rotating with a shaft (25), rotatably supported in the housing and including a slant plane slanting with respect to the shaft; a ring disc type swing member (51) connected to the slant plane through a thrust bearing (52), and swinging with rotation of the orbiting member to reciprocate the piston; a swing support mechanism including a constraining member (36) axially movable along a centerline in the housing and constraining a first ring shaped rotatable member (41) from rotating about the centerline, but allowing the first rotatable member to rotate about a first axis, perpendicular to the centerline; with the swing member connected to the first rotatable member; but does not disclose a second rotatable member connected to the first rotatable member such that it rotates about the second axis, with the swing member connected to the second rotatable member.

Terauchi teaches, for a fluid pump comprising a piston reciprocating in a cylinder bore in a housing; an orbiting member (25) integrally rotating with a shaft (20), rotatably

supported in the housing, and including a slant plane slanting with respect to the shaft; a ring disc type swing member (27) connected to the slant plane through a thrust bearing (28), and swinging with rotation of the orbiting member to reciprocate the piston; a swing support mechanism including a constraining member (31) axially movable along a centerline in the housing and constraining a first rotatable member (34) from rotating about the centerline, but allowing the first rotatable member to rotate about the first axis, perpendicular to the centerline; with the swing member connected to the first rotatable member; that the swing member is connected to the first rotatable member through a second rotatable member (35) connected to the first rotatable member such that it rotates about a second axis.

Since the connection between the swing member and the first rotatable member of Mitchell and Terauchi are functionally equivalent in the piston art; it would have been obvious at the time the invention was made to one having ordinary skill in the art to connect the swing member to the first rotatable member of Mitchell with a second rotatable member such that it rotates about a second axis, as taught by Terauchi, as a matter of engineering expediency.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dan Lopez whose telephone number is (703) 308-0008. The examiner can normally be reached on Monday-Thursday from 6:30 AM -4:00 PM. The examiner can also be reached on alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ed Look, can be reached on (703) 308-1044. The fax number for this group is (703) 872-9302. Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 308-0861.

F. Daniel Lopez
Primary Examiner
Art Unit 3745
September 30, 2002